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Leaflet, describing 'The Collection of Minerals.'

SOCIETIES AND ACADEMIES.

PHILOSOPHICAL SOCIETY OF WASHINGTON.

THE 549th regular meeting was held March 15, 1902. The evening was devoted to a discussion 'On the Definition of Some Modern Sciences.'*

Dr. W. H. Dall opened the discussion with a reference to the early history of the Society, when all the scientific men of Washington belonged to it, and the splitting up into numerous societies had not begun. He quoted some of the definitions of science from the earliest English dictionaries, and in felicitous words welcomed the speakers who had been invited to follow him, and characterized their subjects.

Col. Carroll D. Wright spoke on 'Statistics.' The name is due to Achenwall, Professor at Göttingen about 1750. It may be considered either as a method, or as a science demanding a classification of facts. Numerous fallacies in the collection and use of statistical data were illustrated, and attention was called to the importance of the psychological element in the interpretation of such data; thus, it was found that nearly all the farm mortgages in 1890 were evidences of prosperity rather than of adversity.

Professor Roland P. Falkner, now in charge of the Document Division, Library of Congress, discussed 'Economics.' The limits of a science, he said, are largely questions of the division of labor. So definitions vary, but the consensus of opinion is that economics deals with man in his activities, which are designed to satisfy his material desires, in short with wealth. From an analysis of his wants the metaphysical side of the subject has been developed. His wants being unlimited and nature's provision being limited, man must put forth effort; the character of this effort and the rules which govern it are the subject matter of political economy. The form which economic organization assumes at any time and place depends upon the abundance of land, labor and capital: whatever the form, the 'economic man' seeks the maximum result with the minimum effort. The axioms

*To be published in the *Popular Science Monthly*.

then of the theoretical or deductive economists are the limitations of nature's gifts, and the economic man. The newer school of inductive economists concerns itself minutely with the affairs of the past as well as the present, and is known also as the historical school.

Professor Edward A. Pace, of the Catholic University, spoke on 'Psychology.' He pointed out that the subject is now in a transition state. The older psychology, based on introspection, was inductive, but dealt only with mental operations. The newer science has three methods or fields of research: It investigates the relations between mental and physical phenomena, the development of mental life, and abnormal psychic phenomena. There is a striking parallelism between many psychic and physical phenomena, and one of the great questions of the science is regarding a causal nexus between the two groups.

Dr. Lester F. Ward, speaking for 'Sociology,' defined it as the science of society or of social phenomena. It is based on the study of large groups of men, not of individuals. Tylor's ethnographic parallelisms prove a uniform law of psychic development; primary wants are the same and are similarly supplied everywhere; governments and religions have more in common than in diversity; history is everywhere the same except the names. Sociology can be a science only as it depends on phenomena; and these are due to causes. These causes may be grouped as (1) environment (climate, nature of country, etc.) and (2) subjective environment or character. The old doctrines of free will made man a lawless being, not a rational one. The law of parsimony runs through all life.

CHARLES K. WEAD,
Secretary.

BIOLOGICAL SOCIETY OF WASHINGTON.

THE 352d regular meeting was held on Saturday evening, March 22.

W. C. Kendall presented some 'Notes on the Sticklebacks,' briefly sketching the habits and habitats of these little fishes and stating that in spite of their insignificant size they occurred at times in such vast numbers as to be used for fertilizer, as food for cows and

dogs, and even for man. They were taken in large numbers in the brush weirs used for catching small herring on the coast of Maine, and in the same locality often became a nuisance by clogging the nets of the smelt seiners. The speaker then discussed the synonymy of the group at some length, stating that while he had at his command but few specimens from Europe, there seemed to be three species distinguished by varying conditions of body armature and caudal keel. These were *Gasterosteus aculeatus*, *G. semiarmatus* and *G. gymnurus*. The Pacific forms had been disposed of by Rutter as *G. cataphractus* (Pallas) (possibly the same as *G. aculeatus*); *G. microcephalus* Girard, and *G. cataphractus williamsoni*; *G. microcephalus* being considered as merely an intermediate form.

On the Atlantic coast there seemed to be no intergrading of species and Mr. Kendall considered that for the present these should stand as follows: *Gasterosteus aculeatus* Linnaeus, *G. cuvieri* Girard, *G. atkinsoni* Bean and *G. bispinosus* Walbaum. This last was widely distinct from *G. aculeatus* and was not the *G. bispinosus* of Jordan and Evermann.

W. H. Dall gave some 'Notes on Trophon,' in which he traced the history of the genus *Trophon* of Montfort, which is of distinctly Purpuroid affinities and had long been confused with the Fusoid group named by Sars *Boreotrophon*, but which the speaker showed would have to take the earlier name of *Nephtunea* Bolten.

The typical Trophons are chiefly austral in their distribution, but Mr. Dall has discovered that a certain number of species have succeeded in migrating northward until they have reached the North Temperate Zone. An interesting group of these occurs on the coast of California, but the more northern migrants are stunted and inconspicuous.

E. S. Steele gave an account of 'The Vegetation of Stony Man Mountain, near Luray, Virginia,' being a summary of observations made during August and early September of 1901. Nine conifers were noted, the most interesting being *Abies Fraseri*, the Fraser balsam fir, of which this may possibly be the farthest outpost northward. *Juncus trifidus*,

sparingly known so far south, was collected on the peak. An apparent form of *Cyperus Houghtoni* with few flowers to the spikelet was found on a high headland of rock, and near it was a patch of *Arctostaphylos Uvaursi*, both plants far out of their supposed range. On the same ridge occurred *Astragalus Carolinianus*, unexpected at this altitude. *Anychia divaricata* Raf., a species long neglected, was studied in connection with *A. dichotoma*, and its independence vindicated. *Solidago Randii* Britton, a supposedly northern species, was found on all high ledges. Data were given concerning a species of *Lacinaria* believed to be the true *Serratula pilosa* Ait. *Aquilegia coccinea* Small and *Aronia atropurpurea* Britton, recently described species, were reported, as also the rather recent *Rubus raribaccus* Rydberg and *Vitis Baileyanus* Munson.

F. A. LUCAS.

TORREY BOTANICAL CLUB.

At the meeting of the Club on February 26, the first paper was by Dr. John K. Small, on the 'North American Genera of the Casiaceae,' and will soon appear in print. Discussion followed regarding *Poinceana*, participated in by Dr. Britton, Dr. Underwood and Dr. Small.

The second paper, by Dr. Arthur Hollick, on the 'Flora of Provincetown, Mass.,' was accompanied by a series of maps, charts, views and mounted plant specimens. Dr. Hollick discussed the dependence of this flora upon the local geology, and remarked of Cape Cod that the older part from Highland Light through Truro has a surface of glacial drift; the recent part, through Provincetown to the north and west, consists of drifted sands, all post-glacial, derived from the older coast to the south and due to the general trend of the tides and currents northward. The result is to form a line of shoals along the coast now united into an outer beach; the space between this and the shore is now filling in and becoming swamp, and a new outer line of shoals is already forming. Nothing larger now grows on the sand-dunes than small stunted pines and oaks; but Bradford's account indicates that in 1620 it was covered with large

deciduous trees. Acts to prevent further cutting of timber were passed in 1720, etc. At present the town of Provincetown forbids passing out of certain beaten paths in the wooded district, to prevent further loosening of the sand. Hundreds of acres have been replanted by the state, the lands of Provincetown having been successively reserved as common property of the colony, province and state; it is only within a few years that the land in actual occupation in and near the town has been granted by the state to the occupants. In reclaiming the sands, *Ammophila* or beach grass has been planted first, then bayberry, then *Pinus rigida*, the native pine of the region. Sand-loving species have since become well established as an undergrowth, but the new growth shows no sign of ever equalling the original. The same is true at Block Island, where the original forest had become established while the island was connected with the mainland. The sand flora is remarkable for the great areas closely covered with *Arctostaphylos Uva-Ursi*; this, with *Rubus hispidus* and some plants of *Corema Conradii*, is the chief means of forming the sand into turf. The species collected in Provincetown numbered ninety-four, among which *Corema Conradii* seems not to have been recorded from that town since Thoreau's visit in 1849.

The third paper was a note by Mr. A. P. Anderson on 'Tuckahoe or Indian Bread.' A specimen was exhibited, a mass about two feet long, made up of seemingly annual additions indicating ten years' growth. Similar specimens have been found in the South along roots of oak and other trees, usually about two feet below the surface, obtained chiefly when clearing land of old stumps. Undoubtedly a fungus growth, and probably a *Sclerotium*, it has never been seen to produce spores. The whole substance consists of a septated mycelium with abundance of white pectose. Europe contains the same species, and another in China has been used there for many centuries in medicine. Experiments by Mr. Anderson showed that portions separated from the roots of the host plant were alive in the soil after a half-year. Where the cortex was removed it was renewed.

A note by Rev. L. H. Lighthipe followed, with a communication from Mr. C. L. Pollard regarding his new species *Viola Angellæ*. He exhibited a water-color showing its spring and summer forms of leaf. An excursion for its collection about the Orange Mountains was suggested.

EDWARD S. BURGESS,
Secretary.

THE LAS VEGAS SCIENCE CLUB.

At the regular monthly meeting, held February 13, Mr. E. L. Hewett presented the results of some studies of Navajo blankets, with special reference to the origin and meaning of the designs. Two blankets were exhibited which showed the Suastika design, which seemed to be especially prevalent among the Navajos, and not to have been derived from the older blanket-makers, the Pueblos. Unfortunately the most modern blankets were less beautiful and less interesting than the old ones, because the introduction of diamond dyes had led to the use of many inharmonious colors, and the makers also seemed frequently careless or ignorant of the meaning of the symbolic figures, employing them in a haphazard way.

T. D. A. C.

DISCUSSION AND CORRESPONDENCE.

SONG IN BIRDS.

TO THE EDITOR OF SCIENCE: Two articles on song in birds have recently appeared in SCIENCE, from the pen of Mr. W. E. D. Scott, of Princeton University.* The first of these, at least, has been widely read and freely quoted, and as an amateur bird observer I do not like to see such widely influential work passed by without comment, so I beg to offer a few criticisms.

In the first article, Mr. Scott raises the question as to how the song of each bird originates—whether it is inherited or acquired by some sort of education. He then details an experiment which was carried on, evidently with great care, for a period of nearly five years. Finally, he draws from his experiment

* SCIENCE, October 4, 1901, p. 522, and January 31, 1902, p. 178.